

THE MINERAL INDUSTRY OF BOSNIA AND HERZEGOVINA

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Bosnia and Herzegovina is endowed with a wide range of minerals used to produce metals, construction materials, chemicals, and fuels. Before 1991, Bosnia and Herzegovina had accounted for the major share of the former Yugoslavia's production of alumina, asbestos, bauxite, barite, brown coal, gypsum, iron ore, and steel. The country also had been a substantial producer of aluminum, dolomite, and kaolin. The civil war of 1992-95 resulted in extensive damage to the country's industrial plants, mines, and infrastructure. The cost of repair of damaged industrial facilities was estimated to be \$20 million. The country's postwar economy was under severe duress that resulted not only from physical damage to industrial plant and infrastructure, but also from massive dislocations of settled populations throughout wide areas of the country. The overall economic downturn in 1996 was significant because the gross domestic product declined by 75% compared with that of the prewar level of 1991 (Foreign Broadcast Information Service, 1996). In addition, according to information supplied by news sources in Serbia and Montenegro, the area of Bosnia and Herzegovina known as "Republika Srpska" controlled substantial portions of Bosnia and Herzegovina's mineral resources. The share of Bosnia and Herzegovina's mineral resources under exploitation within "Republika Srpska" was as follows: bauxite, 12%; brown coal, 37%; gypsum, 88%; iron ore, 68%; lead and zinc ore, 35%; lignite, 12%; and quartz, 89% (Foreign Broadcast Information Service, 1994). Table 1 provides estimates of Bosnia and Herzegovina's production of mineral commodities; table 2 presents the country's minerals industry structure—the major mining and processing enterprises, their locations and capacities.

In 1997, Bosnia and Herzegovina continued to recover from the civil war. Reconstruction and repair of the country's system of transportation and communication were undertaken with financial assistance from the World Bank for Reconstruction and Development and the European Bank for Reconstruction and Development. The major mineral inputs into the reconstruction

effort included steel, cement, and sand and gravel. At yearend 1996, Caterpillar Corp. of the United States sold mining equipment worth \$10 million to the Kakaj Coal Mining Company. The equipment, supplied under the auspices of the U.S. Agency for International Development (USAID) Emergency Infrastructure and Services Program, will be used to raise coal production. Morrison Knudsen of the United States assisted the USAID's U.S. Project Management Assistance Group in concluding the equipment sale (Mining Magazine, 1996).

The Government's efforts to establish market economy norms through legislation were generally in beginning stages by yearend 1997. The country's reconstruction will continue to require inputs of steel and industrial minerals, of which there are sufficient domestic resources to meet most needs.

Bosnia and Herzegovina's inland system of ways and communications comprised railroads, highways, and waterways. Although data in respect to the total lengths of the railroad and inland waterway systems had not yet been officially reported, the highway and road system reportedly consisted of 21,168 kilometers (km) of paved, gravel, and earth-surfaced road, of which 11,436 km was paved, 8,146 km was gravel, and 1,586 km was earth surfaced. The country was entirely landlocked and did not possess a merchant marine fleet. Pipelines for the carriage of petroleum were 174 km in length; however, data for those carrying natural gas were not available.

References Cited

- Foreign Broadcast Information Service, 1994, East Europe: Foreign Broadcast Information Service Daily Report EEU-940071, April 13.
- 1996, East Europe: Foreign Broadcast Information Service, Daily Report EEU-96-118, June 8.
- Mining Magazine, 1996, Caterpillar in Bosnia-Herzegovina: Mining Magazine, v. 175, no. 6, December, p. 233.

TABLE 1
BOSNIA AND HERZEGOVINA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/ METALS	1993	1994	1995	1996	1997
Aluminum:					
Bauxite	100,000	75,000	75,000	75,000	75,000
Alumina	50,000	50,000	50,000	50,000	40,000
Metal, ingot; primary and secondary	15,000	15,000	15,000	15,000	15,000
Iron and steel:					
Ore and concentrate:					
Ore, gross weight	250,000	200,000	150,000	100,000	100,000
Ore, Fe content	70,000	70,000	52,000	35,000	35,000
Agglomerate	50,000	50,000	50,000	40,000	40,000
Metal:					
Ferroalloys:					
Ferrosilicon	1,000	1,000	1,000	1,000	1,000
Silicon	200	200	200	100	100
Pig iron	100,000	100,000	100,000	100,000	100,000
Crude steel:	115,000	115,000	115,000	115,000	110,000
Semimanufactures	150,000	100,000	100,000	100,000	100,000
Lead:					
Mineral concentrator output:					
Ore, gross weight (Pb-Zn ore)	10,000	10,000	10,000	10,000	10,000
Pb content of ores	200	200	200	200	200
Pb concentrate	400	400	400	400	400
Metal, smelter, primary and secondary	100	100	100	100	100
Manganese ore:					
Gross weight	2,000	2,000	2,000	2,000	2,000
Mn content	600	600	600	500	500
Zinc:					
Zinc content of Pb-Zn ore	350	300	300	300	300
Concentrate output, gross weight	600	600	600	600	600
INDUSTRIAL MINERALS					
Asbestos, all kinds	500	500	500	500	500
Barite concentrate	2,000	2,000	2,000	2,000	2,000
Cement	thousand tons	150	150	150	200
Clays:					
Bentonite	800	800	800	800	800
Ceramic clay, crude	20,000	20,000	20,000	20,000	20,000
Kaolin:					
Crude	3,000	3,000	3,000	3,000	3,000
Calcined	1,500	1,500	1,500	1,500	1,500
Gypsum:					
Crude	30,000	30,000	30,000	30,000	30,000
Calcined	3,000	3,000	3,000	3,000	3,000
Lime	thousand tons	50	50	50	50
Magnesite, crude	2,000	2,000	2,000	2,000	2,000
Nitrogen, N content of ammonia	2,000	2,000	2,000	500	500
Quartz, quartzite, glass sand: Glass sand	50,000	50,000	50,000	50,000	50,000
Salt, all sources	50,000	50,000	50,000	50,000	50,000
Sand and gravel, excluding glass sand	thousand cubic meters	500	500	500	500
Sodium compounds:					
Soda ash	20,000	20,000	10,000	10,000	5,000
Caustic soda	10,000	10,000	10,000	10,000	5,000
Sodium bicarbonate	1,000	1,000	1,000	1,000	500
Stone, excluding quartz and quartzite, Dimension, crude:					
Ornamental	square meters	20,000	20,000	20,000	20,000
Other	cubic meters	2,000	2,000	2,000	2,000
Crushed and brown, n.e.s.	thousand cubic meters	500	500	500	500
Sulfur, Byproduct of metallurgy		1	1	1	1
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Brown coal	thousand tons	1,000	1,000	1,000	1,000
Lignite	do.	1,500	1,500	1,500	1,000
Coke		100	100	100	--
Petroleum refinery products	thousand 42-gallon barrels	--	--	--	500

1/ Table includes data available through April 1998.

2/ In addition to commodities listed, common clay was also produced, but available information was inadequate to make reliable estimates of output levels.

TABLE 2
BOSNIA AND HERZEGOVINA: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Energoinvest	Plants at Birac-Zvornik	600
Do.	do.	Plant at Mostar	280
Aluminum	do.	Smelter at Mostar	92
Bauxite	do.	Mines at Vlasenica, Jajce, Bosanska Krupa, Posusje, Listica, Citluk, and other locations.	2000
Coal:			
Brown	SOUR Titovi Rudnici Uglja, Tuzla	Mines in BiH	12,000
Lignite	do.	do.	7,000
Cement	Gik Hidrogradnja, Tvornica Cementa BiH	Plant at Kakanj	650
Ferroalloys	Elktrobosna, Elektrohemijska i Eletrotermijska Industrija	Plant at Jajce	80
Iron ore	Rudarsko Metalurski Kombinat Zenica	Mines at Vares, Ljubija, and Radovan	5000
Lead-zinc ore	Energoinvest	Mine and mill at Srebrenica	300
Manganese ore	Mangan-Energoinvest	Mine and concentrator at Buzim	100
Petroleum:			100
Refined	thousand barrels per day	Energoinvest: Rafinerija Nafta Bosanski Brod	Refinery at Bosanski Brod
Pig iron		Rudarsko metalurski Kombinat Zenica (RMK Zenica)	4 blast furnaces at Zenica 2 blast furnaces at Vares
Do.		do.	Electric reduction furnaces at Iljas
Salt	cubic meters per year	Hemijski Kombinat "Sodaso," Rudnik Soli i Solni Bunari	Rock salt: Mines at Tusanj
Do.	do.	do.	Production from brine at Tuzla, BiH
Steel, crude		Rudarsko Metalurski Kombinat Zenica	Plant at Zenica